



**MINISTRY OF
EDUCATION,
YOUTH &
INFORMATION**



**Grade 6
Mathematics
Sample Items**

Performance Task

Prepared by the Student Assessment Unit
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Introduction

This booklet consists of items originally found on the 2019 administration of the Primary Exit Profile (PEP) Mathematics Performance Task (PT). Four (4) parts are contained within this booklet and together they provide a guide that should support the preparation of students for the 2022 administration of the Grade 6 Mathematics PT.

A Play Area for School

This task has 4 parts. Read the information in each part carefully. Complete the task outlined in Part 1 and answer the questions in Parts 2, 3 and 4.

The principal of your school has decided to build a play area for the lower school students. She wants to include a sandbox. She has asked you to help her to make some decisions before she begins the construction. You will have to help her to:

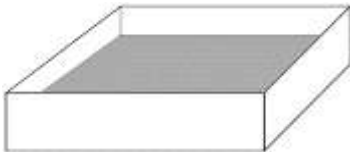
- design the layout for the play area and sandbox
- calculate the amount of sand needed for the sandbox
- choose a hardware store from which to buy sand



Overall Description of Task

Part 1: Designing the Play Area

The principal has identified a section of the school yard for the play area. It has an area of 120 m^2 . She wants to build a rectangular sand box in the play area. The table below shows the space required for the sandbox.

Sand Box	Space Required (m^2)
	48

- A. Use the grid provided to draw the outline of the play area and the sandbox.
- B. Be sure to label the sections for the play area and the sand box. Be sure to include their measurements.

Each square on the grid represents 1 m^2 .

Strand:

Measurement

Objective:

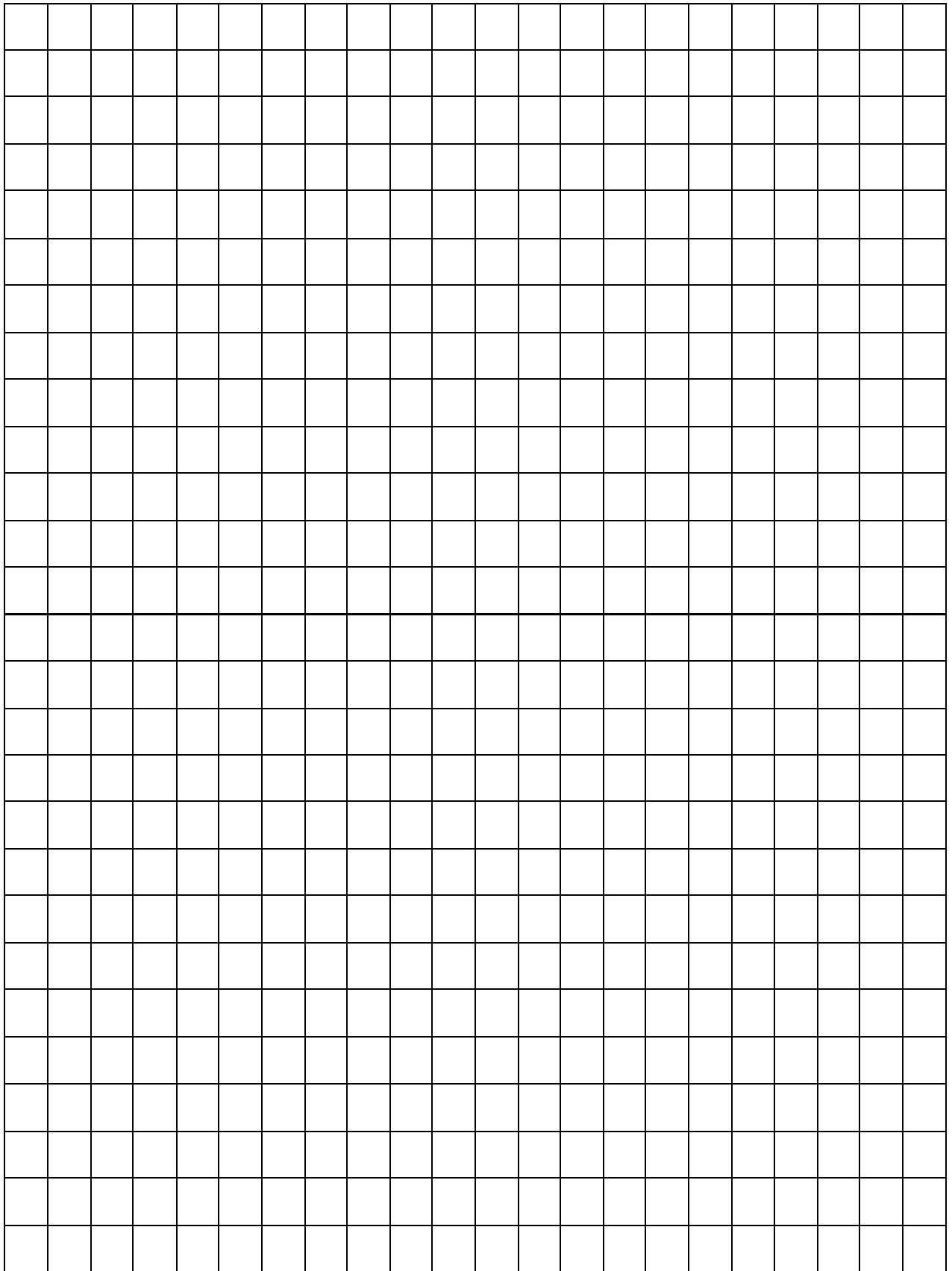
Solve problems involving area measures.

Item Description:

Students are required to model mathematics by applying their knowledge of area to an everyday life situation, which involves designing a sandbox, and a play area.

Key Description:

The dimensions of the playground result in an area of 120m^2 , and the dimensions of the sand pit result in an area of 48m^2 .



Part 2: Designing the Sand Box

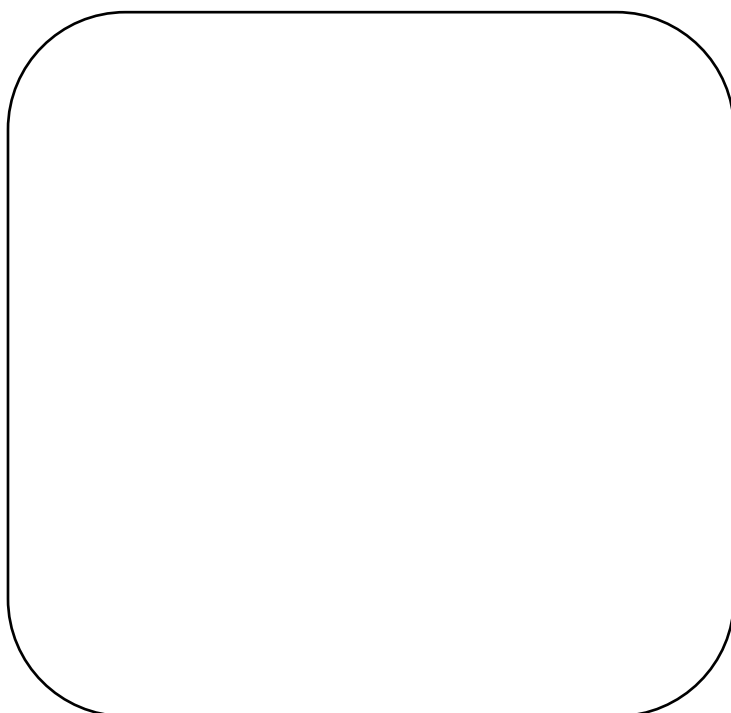
The principal wants to make sure that the students have enough sand to play in. Based on her research, she found out the following:

- The sand in the box should be 25 cm deep.
- The distance between the top of the sandbox and the top of the sand (as shown in the diagram below) should be between 5 cm and 10 cm.

A. What is the height of your sand box?

_____ cm

B. What is the height of your sand box written in metres?
Show your working.



Strand:
Number

Objective:

Read, write and use numbers, using the principle of place value, in the Hindu - Arabic system of numeration.

Item Description:

Students are required to make sense of a problem by analysing constraints given in order to determine the height of a sandbox.

Key Description:

Height of the sandpit stated is from 30 cm and 35 cm.

Strand:
Measurement

Objective:

Differentiate between the size and use of the following units: square centimetre, square metre, hectare and square kilometre system of numeration.

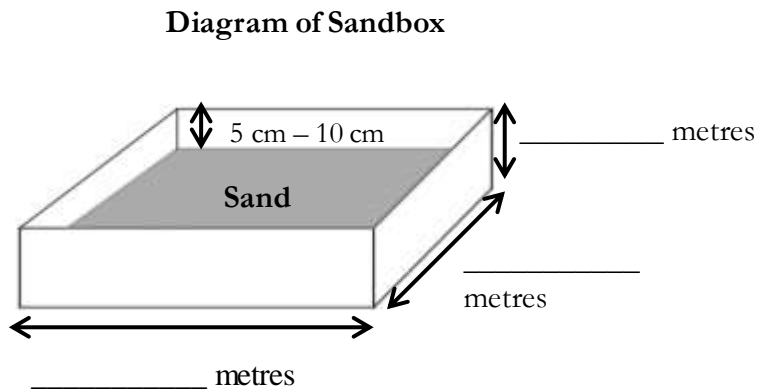
Item Description:

Students are required to use the relationship between the units of length to convert a number expressed in centimetres to metres.

Key Description:

Converts the height stated in Part 2A to metres.
(N.B. 100 cm = 1 m)

C. Based on your design in Part 1 and the information in Part 2A and 2B above, fill in the missing measurements (in metres) on the diagram of the sandbox below.



Strand:
Number

Objective:

Read, write and use numbers, using the principle of place value, in the Hindu - Arabic system of numeration.

Item Description:

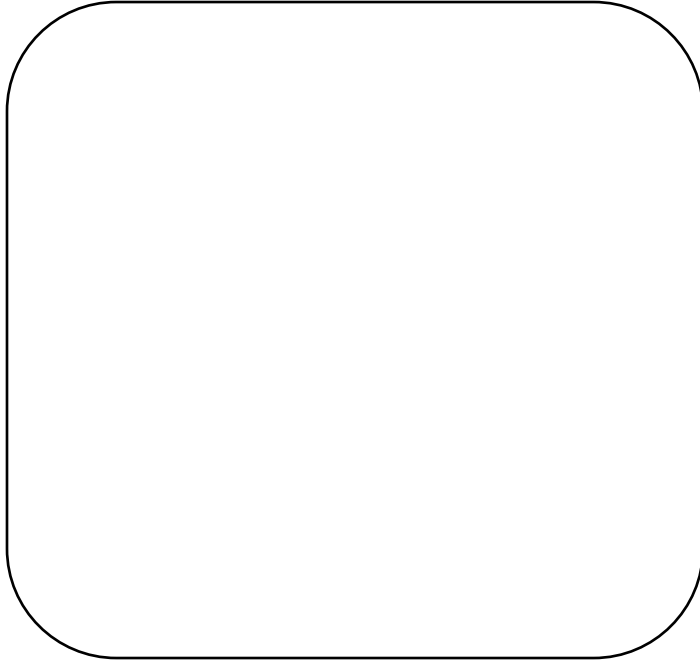
Students are required to state the appropriate quantities that corresponds to missing dimensions of a sandbox.

Key Description:

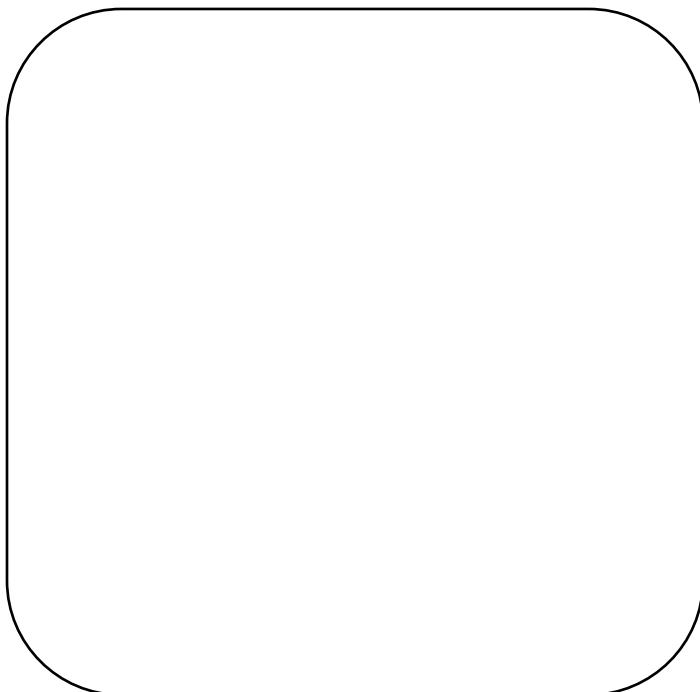
Dimensions given match the dimensions given in Part 1 and Part 2B.

Part 3: Getting Sand for the Sand Box

A. How much sand (in m^3) will be needed for the sand box?
Show all your work.



A bag of sand contains $0.5 m^3$ of sand. How many bags of sand will you need to buy for your sand box? Show all your work.



Strand:
Measurement

Objective:
Investigate and use the formula for the volume of a rectangular prism to solve problems.

Item Description
Students are required to make sense of a situation given, by identifying appropriate quantities necessary to determine the volume of sand needed for a sandbox.

Key Description:
The volume of sand given (in m^3) is the product of $0.25 m$, and the dimensions used to draw the sandpit in Part 1 OR the length and width stated on the diagram in Part 2C.

Strand:
Number

Objective:
Use the four operations to compute with fractional numbers.

Item Description:
Students are required to apply their knowledge of volume and fractions to analyze a situation in which they are to calculate the total amount of sand needed for a sandbox using quantities relevant to the situation.

Key Description:
The volume of sand given in Part 3A is divided by $0.5 m^3$ (if the quotient is a fraction, it is rounded to the nearest whole number).

Part 4: Buying Sand for the Sand Box

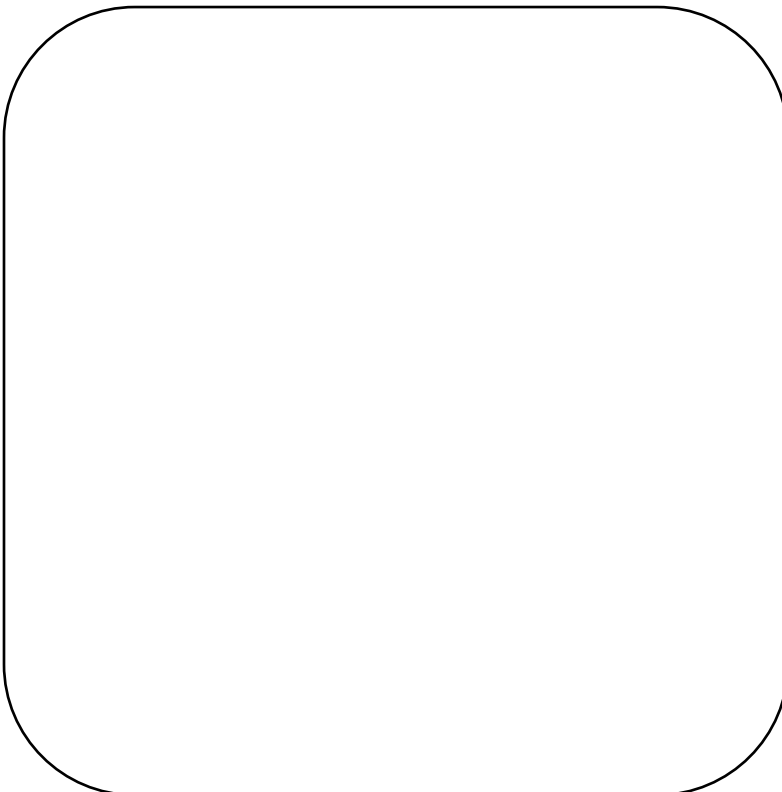
There are two questions in this part: 4A and 4B.
Read each question carefully then choose ONE.
You are to do EITHER 4A OR 4B.

4A.

There are two hardware stores that sell sand by the bag. The principal needs to decide which store to buy the sand from. The price and delivery costs are given in the table below.

Item	Kumar's Hardware and Lumber	Construction One-Stop Hardware
Sand	\$400 per bag	\$500 per bag if less than 30 bags are purchased \$450 per bag if 30 or more bags are purchased
Delivery Cost	\$5000	\$3000

From which hardware should the principal buy the sand?
Give reasons for your answer.



Strand:

Number

Objective:

Read, write and use numbers, using the principle of place value, in the Hindu - Arabic system of numeration.

Item Description:

Students are required to communicate their reasoning by comparing quantities given in a real life scenario, in which they are to justify a conclusion they have made with appropriate calculations.

Key Description:

The answer given in Part 3B is used to calculate the cost of sand from each hardware, the cost for delivery from each hardware is added, and the cheaper hardware is selected.

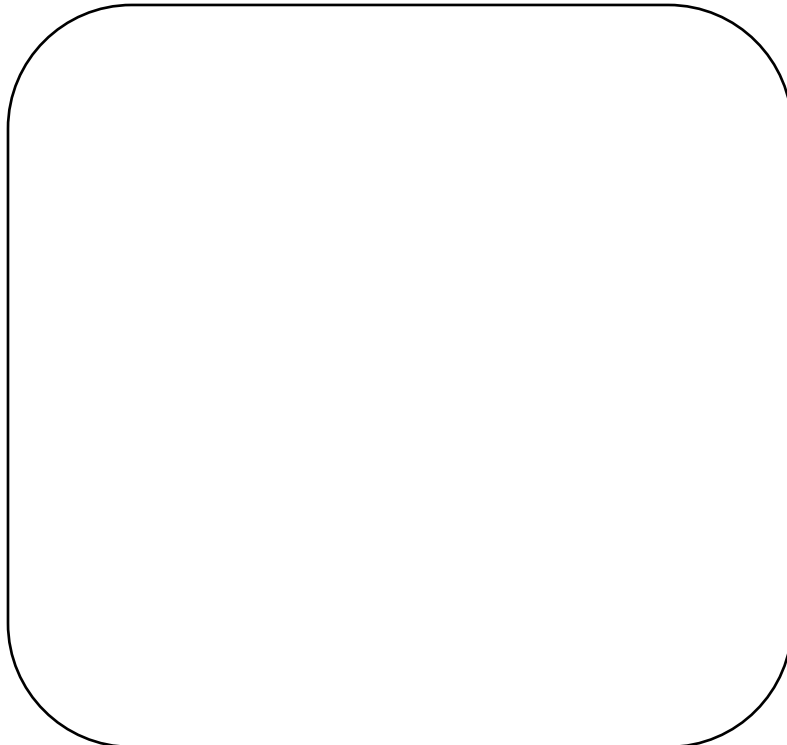
OR

4B.

There are two hardware stores that sell sand in cubic metres (m^3). The principal needs to decide which store to buy the sand from. The price and delivery costs are given in the table below.

Item	Bare Sand Hardware	Sand Galore Hardware
Sand	\$800 per m^3	\$1000 per m^3 if less than 15 m^3 of sand is purchased \$900 per m^3 if 15 m^3 or more of sand is purchased
Delivery Cost	\$5000	\$3000

From which hardware should the principal buy the sand?
Give reasons for your answer.



Strand:

Number

Objective:

Read, write and use numbers, using the principle of place value, in the Hindu - Arabic system of numeration.

Item Description:

Students are required to communicate their reasoning by comparing quantities given in a real life scenario, in which they are to justify a conclusion they have made with appropriate calculations.

Key Description:

The answer given in Part 3A is used to calculate the cost of sand from each hardware, the cost for delivery from each hardware is added, and the cheaper hardware is selected.